	White Spot on C.M.	Dark Spot on C.M.	Interval.
	h m	h m	m
March 22	8 47	9 2	15
24	10 4	10 15	11
31	9 27	9 35	8

The dark spot was rapidly gaining on the white, and on April 5 and 7 I looked for the objects again, but the aspect of the region had quite changed, apparently by the blending of the two spots. I obtained observations on succeeding nights, thinking it possible the dark spot might reappear to the west of the white one, but I failed to recover either of the objects with certainty.

Saturn.—During the first half of May I made observations of this planet on ten nights with a view to detect spots on the equator or belts. I employed one of Steinheil's "monocentric micrometer oculars" of $\frac{1}{4}$ inch equivalent focus (= power of 312), but detected no irregular markings on the disc. There was a narrow dark belt near the equator and a broad diffused band of shading in the north hemisphere, but no other details could be made out with the means employed.

Bristol: 1895 *May* 20.

Diameters of Jupiter and his Satellites observed at the Royal Observatory, Greenwich.

(*Communicated by the Astronomer Royal.*)

Diameters of Jupiter.

The following measures were made with the 28-inch refractor during the past winter. They were commenced on 1894 November 23, but the bad weather and frost prevented any work from 1895 February 5 to March 12, so that the series is not as complete as was wished. The diameters are reduced to mean distance 5·2028 (Leverrier), and the equatorial diameters are corrected for phase from Mr. Marth's Ephemeris, published in the Society's *Monthly Notices.* The following table exhibits the results found by each observer, in separate columns, and also distinguishes between the diameters obtained with different eye-pieces, those with the powers 450 and 470 being grouped together. It will be seen that there are indications of personality and also of a difference due to the power of the eye-piece employed.

Diameters of Jupiter.

Date.	Power of Eye-piece.	Mr. Dyson. Equat. Diam.	Mr. Dyson. Polar Diam.	Mr. Maunder. Equat. Diam.	Mr. Maunder. Polar Diam.	Mr. Lewis. Equat. Diam.	Mr. Lewis. Polar Diam.
1894.							
Nov. 23	470	...	...	...	...	38·853	36·306
Dec. 18	470	39·052	36·308	...	...	38·889	36·120
1895.							
Jan. 1	670	38·494	36·175	...	...	38·610	36·124
9	470	...	...	...	...	37·860	35·827
18	670	...	...	37·977	...	...	...
20	450	39·169	36·511	...	...	...	...
21	450	39·435	36·625	...	...	...	...
22	670	...	...	...	...	37·791	35·753
26	670	...	...	...	...	37·931	35·783
Feb. 5	450	...	...	38·605	36·136	...	...
Mar. 12	670	...	...	...	...	37·618	36·143
13	670	...	...	...	...	37·483	35·880
17	670	38·521	36·184	...	...	...	...
18	670	...	...	...	...	38·411	35·553
22	670	...	...	...	...	38·103	35·922
26	670	...	...	...	...	38·356	...
31	670	38·981	36·352	...	...	...	...
Apr. 1	670	...	...	...	...	38·179	36·146
3	670	...	...	...	...	38·228	36·029
Mean	450	39·219	36·481	38·605	36·136	38·534	36·084
Mean	670	38·665	36·237	37·977	...	38·071	35·926
(450)–(670)		+0·544	+0·244	+0·628	...	+0·463	+0·158
Mean Diameter		38·942	36·359	38·291	36·136	38·303	36·005
Ellipticity			$\frac{1}{15·1}$		$\frac{1}{17·8}$		$\frac{1}{16·7}$

Using the observations of all three observers, the resulting equatorial diameter is 38″·407, the polar diameter 36″·099, and an ellipticity of $\frac{1}{16·64}$.

Professor E. E. Barnard, with the 36-inch Lick refractor, obtained for the equatorial diameter 38″·522, and polar diameter 36″·112.

Diameters of the Satellites.

The equatorial and polar diameters of the satellites were made in January and March of this year, the plan of the work being to obtain a long series of both diameters taken on the same evening with the view of detecting any possible ellipticity. To avoid any prejudice, the equatorial diameters of all four were measured before making the measures for the polar diameters. A very complete series has been obtained, notwithstanding the break in February, above mentioned, and the observations on the whole indicate a slight prolate ellipticity in J I. and J II., the polar diameters being the larger. In the table the column (E – P) gives the difference of the two diameters on each evening, the sums of the positive and negative residuals, and the mean difference.

Equatorial and Polar Diameters of Jupiter's Satellites. Collected Results.

Date.		Obser-ver.	Power.	J I. Equat. Diam.	J I. Polar Diam.	J I. E–P.	J II. Equat. Diam.	J II. Polar Diam.	J II. E–P.	J III. Equat. Diam.	J III. Polar Diam.	J III. E–P.	J IV. Equat. Diam.	J IV. Polar Diam.	J IV. E–P.
Jan.	1	L.	670	″1·131	″1·126	″+0·005	″0·856	″0·964	″–0·108	″1·814	″1·315	″+0·499	″1·582	″1·129	″+0·453
	9	L.	470	1·090	1·122	– ·032	0·710	0·74	– ·033	1·478	1·362	+ ·116	1·314	1·429	– ·115
	21	D.	450	...	...	...	...	...	...	1·286	...	...	...	...	...
	22	L.	670	1·027	1·053	– ·026		1·064	– ·126	1·300	1·416	– ·116	1·340	1·438	– ·098
	26	L.	670	0·835	0·989	– ·154	0·872	0·919	– ·047	1·271	1·276	– ·005	1·308	1·343	– ·035
Mar.	12	L.	670	0·796	0·775	+ ·021	0·742	0·726	+ ·016	1·247	1·325	– ·078	0·996	1·018	– ·022
	13	L.	670	0·915	1·139	– ·224	0·874	1·050	– ·176	1·271	1·608	– ·337	1·342	1·187	+ ·155
	17	D.	670	1·333	1·164	+ ·169	...	...	...	...	...	...	...	...	...
	18	L.	670	1·083	1·356	– ·273	0·946	1·274	– ·328	1·793	1·857	– ·064	1·446	1·558	– ·112
	22	L.	670	0·950	0·991	– ·041	0·932	0·971	– ·039	1·482	1·624	– ·142	1·434	1·498	– ·064
	26	L.	670	1·051	1·236	– ·185	1·181	1·085	+ ·096	1·548	1·339	+ ·209	1·403	1·511	– ·108
	31	D.	670	1·359	1·318	+ ·041	1·160	1·176	– ·016	...	...	...	1·378	1·360	+ ·018
Mean Diameters				1·052	1·115	+ ·236 – ·935	0·921	0·997	+ ·112 – ·873	1·449	1·458	+ ·824 – ·742	1·354	1·347	+ ·626 – ·554
Mean Diameter				″1·084		– ″·063	″0·959		– ″·076	″1·454		+ ″·009	1·350		+ ″·007

For comparison the following are appended :—

			J I.	J II.	J III.	J IV.
1880	Chicago,	$18\frac{1}{2}$ inch	″1·114	″0·980	″1·778	″1·457
1893	Lick	36 ,,	1·048	0·870	1·521	1·430
1895	Greenwich	28 ,,	1·084	0·959	1·454	1·350

Royal Observatory, Greenwich :
1895 *June* 11.

On a Fixed System of Star Coordinates.
By R. H. M. Bosanquet, F.R.S.

Polaris is taken as pole of a system of coordinates. The distance of any star from *Polaris* is one coordinate (D). Great circles are drawn through *Polaris* and other stars, one of which (ϵ *Orionis*) is taken as starting-point. The angle at *Polaris* between any of these great circles and the one through ϵ *Orionis* is the other coordinate, and is called the ascension (A).

If consistent positions of the stars concerned are given in any system of coordinates, the *Polaris* distance and ascension can be found. Where the given places are equatorial, the work has been reduced to the determination of small quantities for stars of moderate declination; and the calculation can be carried to the third decimal of 1″ with ordinary logarithms by a short process.

The following places of *Spica* are from a list reduced from the various catalogues. The annual change is by comparison with the Bradley place; the number for 1900 by the annual change.

α Virginis.

Mean Places.	A. 117° 12′	Annual Change.	1900.	D. 101° 51′	Annual Change.	1900.
	″	″	″	″	″	″
Auwers' Bradley, 1755	50·16	...	...	51·67	...	...
Greenwich, 1880 ...	43·90	−0·050	42·90	54·79	+0·025	55·29
Radcliffe, 1890 ...	43·05	−0·053	42·52	54·23	+0·019	54·42
Nautical Almanac, 1895	43·18	−0·050	42·93	55·08	+0·024	55·20

The annual changes form the basis of a discussion of proper motions. The selection of ϵ *Orionis* is connected with this.

As to the places of the list for 1900. The *Nautical Almanac* places agree with the Greenwich, as they should. The Radcliffe and Greenwich have little or no average difference in A; but the Greenwich *Polaris* distances are always in excess of the Radcliffe.

The same method could be applied directly to the results of observation corrected for refraction and aberration, and interpolated to the same time, if it were not for the insufficient accuracy of single observations of the fundamental stars.

As to the origin of ascension, secondary fundamental stars could be used, which would, in fact, be identical with the clock stars for the most part.

For *Polaris* additional material must be obtained, either by co-operation or observation out of the meridian, or both.

Errors in *Polaris* R.A. affect the results very little.

Assuming that sufficiently accurate places of *Polaris* can be got, the numbers obtainable through the calculations indicated will be directly comparable, as in the above example, without the intervention of precession or nutation.

Two methods are suggested for extra-meridian observations:—